to § 86.140, obtaining a stabilized reading of the exhaust bag sample on all analyzers within 20 minutes of the end of the sample collection phase of the test. Obtain methanol and formaldehyde sample analyses, if applicable, within 24 hours of the end of the sample period. If it is not possible to perform analysis on the methanol and formaldehyde samples within 24 hours, the samples should be stored in a dark, cold (4–10 °C) environment until analysis. Analyze the samples within fourteen days.

(21) As soon as possible, and in no case longer than one hour after the end of the hot start phase of the test, transfer the six particulate filters to the weighing chamber for post-test conditioning, if applicable.

(22) Disconnect the exhaust tube from the vehicle tailpipe(s) and drive the vehicle from dynamometer.

(23) The CVS or CFV may be turned off, if desired.

(24) Vehicles to be tested for evaporative emissions proceed according to § 86.134; vehicles to be tested with the supplemental two-diurnal test sequence for evaporative emissions proceed according to § 86.138–96(k). For all others, this completes the test sequence.

[56 FR 25776, June 5, 1991, as amended at 60 FR 34347, June 30, 1995; 79 FR 23697, Apr. 28, 2014]

§ 86.138–96 Hot soak test.

(a)(1) *Gasoline- and methanol-fueled vehicles.* For gasoline- and methanol-fueled vehicles, the hot soak test shall be conducted immediately following the running loss test. However, sampling of emissions from the running loss test is not required as preparation for the hot soak test.

(2) *Gaseous-fueled vehicles.* Since gaseous-fueled vehicles are not required to perform a running loss test, the hot soak test shall be conducted within seven minutes after completion of the hot start exhaust test.

(b) The hot soak test may be conducted in the running loss enclosure as a continuation of that test or in a separate enclosure.

(1) If the hot soak test is conducted in the running loss enclosure, the driver may exit the enclosure after the running loss test. If exiting, the driver should use the personnel door described in § 86.107–96(a)(2), exiting as quickly as possible with a minimum disturbance to the system. The final hydrocarbon and methanol concentration for the running loss test, measured in § 86.134–96(g)(1)(xx), shall be the initial hydrocarbon and methanol concentration (time=0 minutes) C_{HCi} and C_{CH_3OHi}, for the hot soak test.

(2) If the vehicle must be moved to a different enclosure, the following steps must be taken:

(i) The enclosure for the hot soak test shall be purged for several minutes prior to completion of the running loss test. WARNING: If at any time the concentration of hydrocarbons, of methanol, or of methanol and hydrocarbons exceeds 15,000 ppm C the enclosure should be immediately purged. This concentration provides at least a 4:1 safety factor against the lean flammability limit.

(ii) The FID hydrocarbon analyzer shall be zeroed and spanned immediately prior to the test.

(iii) Fresh impingers shall be installed in the methanol sample collection system immediately prior to the start of the test, if applicable.

(iv) If not already on, the mixing fan(s) shall be turned on at this time. Throughout the hot soak test, the mixing fan(s) shall circulate the air at a rate of 0.8±0.2 cfm per cubic foot of the nominal enclosure volume.

(v) Begin sampling as follows:

(A) Analyze the enclosure atmosphere for hydrocarbons and record. This is the initial (time = 0 minutes) hydrocarbon concentration, C_{HCi}, required in § 86.143. Hydrocarbon emissions may be sampled continuously during the test period.

(B) Analyze the enclosure atmosphere for methanol, if applicable, and record. The methanol sampling must start simultaneously with the initiation of the hydrocarbon analysis and continue for 4.0±0.5 minutes. This is the initial (time=0 minutes) methanol concentration, C_{CH_3OHi}, required in § 86.143. Record the time elapsed during this analysis. If the 4-minute sample period is inadequate to collect a sample of sufficient concentration to allow accurate GC analysis, rapidly collect the

methanol sample in a bag and then bubble the bag sample through the impingers at the specified flow rate. The time elapsed between collection of the bag sample and flow through the impingers should be minimized to prevent any losses.

(vi) The vehicle engine compartment cover shall be closed (if not already closed), the cooling fan shall be moved, the vehicle shall be disconnected from the dynamometer and any sampling system, and then driven at minimum throttle to the enclosure for the hot soak test. These steps should be done as quickly as possible to minimize the time needed to start the hot soak test.

(vii) The vehicle's engine must be stopped before any part of the vehicle enters the enclosure.

(viii) The vehicle shall enter the enclosure; the enclosure doors shall be closed and sealed within 2 minutes of engine shutdown and within seven minutes after the end of the running loss test.

(ix) The test vehicle windows and any luggage compartments shall be opened (if not already open). The vehicle engine compartment cover shall be closed (if not already closed).

(c) [Reserved]

(d) The temperature recording system shall be started and the time of engine shutoff shall be noted on the evaporative emission hydrocarbon data recording system.

(e) For the first 5 minutes of the hot soak test, the ambient temperature shall be maintained at 95±10 °F. For the remainder of the hot soak test, the ambient temperature shall be maintained at 95±5 °F (95±2 °F on average).

(f) The 60±0.5 minute hot soak begins when the enclosure doors are sealed (or when the running loss test ends, if the hot soak test is conducted in the running loss enclosure).

(g) The FID (or HFID) hydrocarbon analyzer shall be zeroed and spanned immediately prior to the end of the test.

(h) Fresh impingers shall be installed in the methanol collection system immediately prior to the end of the test, if applicable.

(i) [Reserved]

(j) At the end of the 60±0.5 minute test period:

(1) Analyze the enclosure atmosphere for hydrocarbons and record. This is the final (time=60 minutes) hydrocarbon concentration, C_{HCf}, required in § 86.143.

(2) Analyze the enclosure atmosphere for methanol and record, if applicable. The methanol sampling must start simultaneously with the initiation of the hydrocarbon analysis and continue for 4.0±0.5 minutes. This is the final (time=60 minutes) methanol concentration, C_{CH_3OHf}, required in § 86.143. Record the time elapsed during this analysis. If the 4-minute sample period is inadequate to collect a sample of sufficient concentration to allow accurate GC analysis, rapidly collect the methanol sample in a bag and then bubble the bag sample through the impingers at the specified flow rate. The time elapsed between collection of the bag sample and flow through the impingers should be minimized to prevent any losses.

(k) For the supplemental two-diurnal test sequence (*see* § 86.130–96), perform a hot soak test as described in this section, except that the test shall be conducted within seven minutes after completion of the hot start exhaust test and temperatures throughout the hot soak measurement period must be between 68 ° and 86 °F. This hot soak test is followed by two consecutive diurnal heat builds, described in § 86.133–96(p).

(l) If the vehicle is to be tested for diurnal emissions, follow the procedure outlined in § 86.133–96.

[58 FR 16042, Mar. 24, 1993, as amended at 59 FR 48510, Sept. 21, 1994; 60 FR 43897, Aug. 23, 1995; 75 FR 22980, Apr. 30, 2010]

§ 86.139–90 Particulate filter handling and weighing.

(a) At least 8 hours, but not more than 56 hours before the test, place each filter in an open, but protected, petri dish and place in the weighing chamber which meets the humidity and temperature specifications of § 86.112.

(b) At the end of the 8 to 56 hour stabilization period, weigh the filter on a balance having a precision of one microgram. Record this weight. This reading is the tare weight.

(c) The filter shall then be stored in a covered petri dish which shall remain